Work Order ID 85992

June-19-12 1:17:33 PM

85992

Item ID: D206-667-201TRN

Revision ID:

Item Name: Crosstube Turning Detail

Accept *N900040100* Setup Start *NS1* Stop *NS2*

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Cust Item ID:

Customer:

Reference:

Approvals: **Process Plan:** MLJ **Date:** 12/06/19 **Tooling:** **Date:**

QC: **Date:** **SPC (Y/N):** **Date:**

Run Start *NR1* Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D206-667-241	Rev C

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
100 *100* Mori Seiki Mori Seiki CNC Lathe Large	MORI SEIKI CNC LATHE LARGE **Memo**	0.00 0.00				1	Ø		MML 12/07/30
110 *110* QC Quality Control	QC1- Inspect dimensions to dimension sheet **Memo**	0.00 0.00				1	Ø		MML 12/07/30

Memo (100):

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA084

2-Turn first side as per Folio FA084

3-Blend transition lines only, **do not sand whole tube**:

FOLIO REV: AA

DWG REV: C

*Use mill bastard file, brush file repeatedly with file card.

*Do not use sandpaper coarser than 320 grit.

RTO

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: [signature] Date: 12/09/18

QA Closed: [signature] Date: 12/9/18

Work Order: 85992	DISPOSITION	AGAINST DEPARTMENT/PROCESS
Part No. D206-667-201TRN	Rework [ ]	Skid-tube [ ] Crosstube [✓] Prod. Eng. Coor. [ ] Engineering [ ]
NCR No. 12-1804	Scrap [ ]	Machining [ ] Small Fab [ ] Rec/Store/Packaging [ ] Quality [ ]
	Use-as-is [X]	Thermoforming [ ] Finishing [ ] Supplier [ ]
	Work Order Update [ ]	Large Fab [ ] Composite [ ] Other [ ]

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data [ ] Equip/Tooling [ ] Operator [ ] Material [ ] Offset/Setup [ ] Other [ ] Process [ ] Supplier [ ] Training [ ] Unauthorized [ ]	12/9/4	10	~~1180~~ 1	Tube O.D. 1.780 is 1.787 (+0.002 over tol.) Cuff O.D. is 2.234, tapering to 2.243 at top of cuff.	DAS 12 9-89 12/9/4	Acceptable	DAS 12 9-89 12/9/4	DAS 16 9-89 12/09/14	DAS 16 9-89 12/09/14

FAULT CATEGORY

Landing Gear	Hardware	General		
[ ] Bending Passes Below Min	[ ] Breaking	[ ] Burrs	[ ] Maintenance	[ ] Set-up
[ ] Centre Not Concentric to O/S	[ ] Missing	[ ] Contamination	[ ] Mislabeled	[ ] Supplier
[ ] Cracks	[ ] Size/Length	[ ] Cut Too Short	[ ] Off-Set	[ ] Temperature/Cure
[ ] Crushed/Crimp at Bending	[ ] Spinning	[ ] Documentation/Data	[ ] Orientation Misread	[ ] Weld
[ ] Inspection Strip in Tube	[ ] Threading	[ ] Finish	[ ] Out of Calibration	[ ] Wrong Stock Pulled
[ ] Other	[ ] Wrong	[ ] Inspection Incomplete	[ ] Out of Sequence	
[ ] Positioned Wrong	**Drill Holes**	[ ] Inspection Unqualified	[ ] Outside Dimensions	[ ] Other
[ ] Ripples on Inner Bend	[ ] Misaligned	[ ] Instructions Incomplete/Unclear	[✓] Over/Under tolerance	
[ ] Torque Waves in Extrusion	[ ] Ovalized	[ ] Jigs/Fixtures/Tooling	[ ] Part Lost	
[ ] Turning Sequence	[ ] Over/Undersized	[ ] Kit Incorrect	[ ] Part Moved	
[ ] Wave/Twist in Tube	[ ] Too Many	[ ] Kit Missing	[ ] Raw Material	

Work Order ID 85992

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Item ID: D206-667-201TRN

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Item Name: Crosstube Turning Detail

Accept *N900040100*

Setup Start *NS1*

Stop *NS2*

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Cust Item ID:

Customer:

Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* Mori Seiki Mori Seiki CNC Lathe Large	MORI SEIKI CNC LATHE LARGE	0.00				1	Ø		
	Memo 1-Turn second side as per Folio FA084 2-File down transition lines smooth. 3-Blend transition lines only, **do not sand whole tube**: *Use mill bastard file, brush file repeatedly with file card. FOLIO REV: A DWG REV: C *Do not use sandpaper coarser than 320 grit.	0.00							mml 12/07/30
130 *130* QC Quality Control	QC1- Inspect dimensions to dimension sheet	0.00				1	Ø		
	Memo	0.00							mml 12/07/30

Work Order ID 85992

June-19-12 1:17:33 PM

85992

Item ID: D206-667-201TRN **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Crosstube Turning Detail **Stop** *NS2*

Start Date: 19/06/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run Start *NR1*

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00							
140 QC Quality Control	Memo	0.00				JW		12-9-5	
145		0.00							
145 Crosstubes Crosstubes	Memo GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.	0.00				JW		12-9-10	
150	~~Crosstubes Chemical Conversion~~	0.00							
150 HandFXtube Hand Finishing Crosstubes	Memo	0.00				CF		12-9-13	

1- Pressur wash x-tube insideandout

2- Acid Etch inside and out, use Red Scotch Brite.

Work Order ID 85992

June-19-12 1:17:33 PM

85992

Item ID: D206-667-201TRN
Revision ID:
Item Name: Crosstube Turning Detail

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*
Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	~~QC7-Inspect Chemical Conversion Coat~~ QC5	0.00				DAS 03 9-89			12-9-13
	Memo	0.00							
170 *170* Packaging Packaging	Packaging	0.00				RM			12-9-13
	Memo Identify and Stock in kanban rackLocation: LG	0.00							
180 *180* QC Quality Control	QC21- Final Inspection - Work Order Release	0.00							12/9/14
	Memo	0.00							

MF 12-09-13

Picklist Print

June-19-12 1:17:37 PM

Work Order ID: 85992 *85992*

Parent Item: D206-667-201TRN *D206-667-201TRN*

Parent Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Required Date:** 03/07/2012

Start Qty: 1.00 **Required Qty:** 1.00

Comments:
IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified by:DD
IPP Rev:C 08-12-23 revc as per dwg DD verified by JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6003-102 *D6003-102* Crosstube, 206		Manufactured	No			110	Each	55.0000	1 **	1			

Location	Loc Qty	Loc Code
LG	55	
29116	10	
38335	45	

√ mam 12/07/29

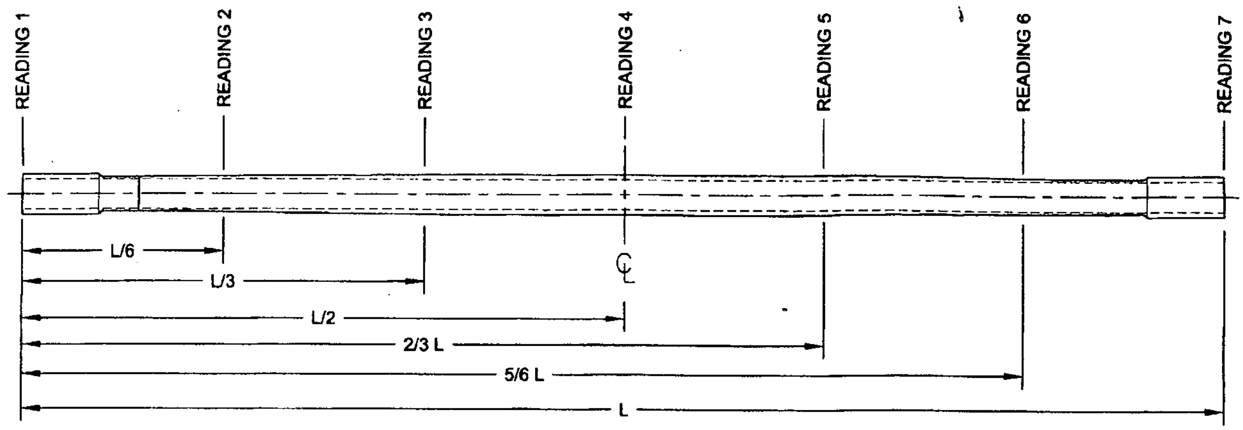
DART AEROSPACE LTD	Work Order:	85992
Description: Crosstube Assembly	**Part Number:**	**D206-667-241**
Inspection Dwg: D206-667-241 **Rev:** C		**Page 1 of 2**

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	30° x 0.500	+/-0.010	30° x .500	✓		vern	CNC-08
	0.250	+/-0.010	.250	✓		↓	
	2.240	+0.005/-0.000	2.240	✓			
	4.438	+/-0.030	4.440	✓			
	1.780	+0.005/-0.000	1.782	✓			
	R0.063	+/-0.010	.063	✓		R.G	
	1.851	+0.005/-0.000	1.851	✓		vern	CNC-08
	1.928	+0.005/-0.000	1.933	✓		↓	
	2.005	+0.005/-0.000	2.010	✓			
	2.082	+0.005/-0.000	2.082	✓			
	2.159	+0.005/-0.000	2.162	✓			
	2.190	+0.005/-0.000	2.192	✓			
SIDE B	30° x 0.500	+/-0.010	30° x .500	✓		vern	CNC-08
	0.250	+/-0.010	.250	✓		↓	
	2.240	+0.005/-0.000	2.239-2.234		✓		
	4.438	+/-0.030	4.440	✓			
	1.780	+0.005/-0.000	1.785	✓			
	R0.063	+/-0.010	.063	✓		RG	
	1.851	+0.005/-0.000	1.856	✓		vern	CNC-08
	1.928	+0.005/-0.000	1.933	✓		↓	
	2.005	+0.005/-0.000	2.009	✓			
	2.082	+0.005/-0.000	2.086	✓			
	2.159	+0.005/-0.000	2.161	✓			
	2.190	+0.005/-0.000	2.191	✓			
	100.60	+/-0.020	100.60	✓		tape	LG-22

DART AEROSPACE LTD	Work Order:	85992
Description: Crosstube Assembly	**Part Number:**	**D206-667-241**
Inspection Dwg: D206-667-241 **Rev:** C		**Page 2 of 2**

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.433	.441	.436	.432	.009	0.054"
READING 2 L= 11	.246	.257	.266	.258	.020	
READING 3 L= 23	.336	.360	.360	.343	.024	
READING 4 L= 50	.446	.448	.439	.434	.014	
READING 5 L= 23	.351	.349	.345	.349	.006	
READING 6 L= 11	.249	.259	.261	.256	.012	
READING 7 L= cuff	.437	.431	.438	.439	.008	

Calibration Result

Actual Block Thickness: ______

Sitescan 250 Measured Thickness: ______

Measured by:	mm,l
Date:	12/07/30

Audited by:	JW
Date:	17-9-5

Preliminary Approval:	
Date:	

Rev	Date	Change	Revised by	Approved
A	06.10.16	New Issue (P/O D206-667-201)	KJ/JLM	
B	09.05.20	Dwg Rev updated	KJ	
C	12.06.04	Wall thickness form added	KJ	

Item	Qty -241	Part Number	Description
1	X	D206-667-241	CROSSTUBE ASSEMBLY (206B HIGH AFT)
2	1	D6003-102	CROSSTUBE
3	2	D2891-1	SUPPORT
4	4	D3595-063-395	RUBBER CUSHION
5	4	MS21920-20	CLAMP (OR MS21920-21)
6	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 85992 MLJ
12/06/19

UNDER REVIEW
OK

RELEASED 08/11/12

DEO ATTACHED

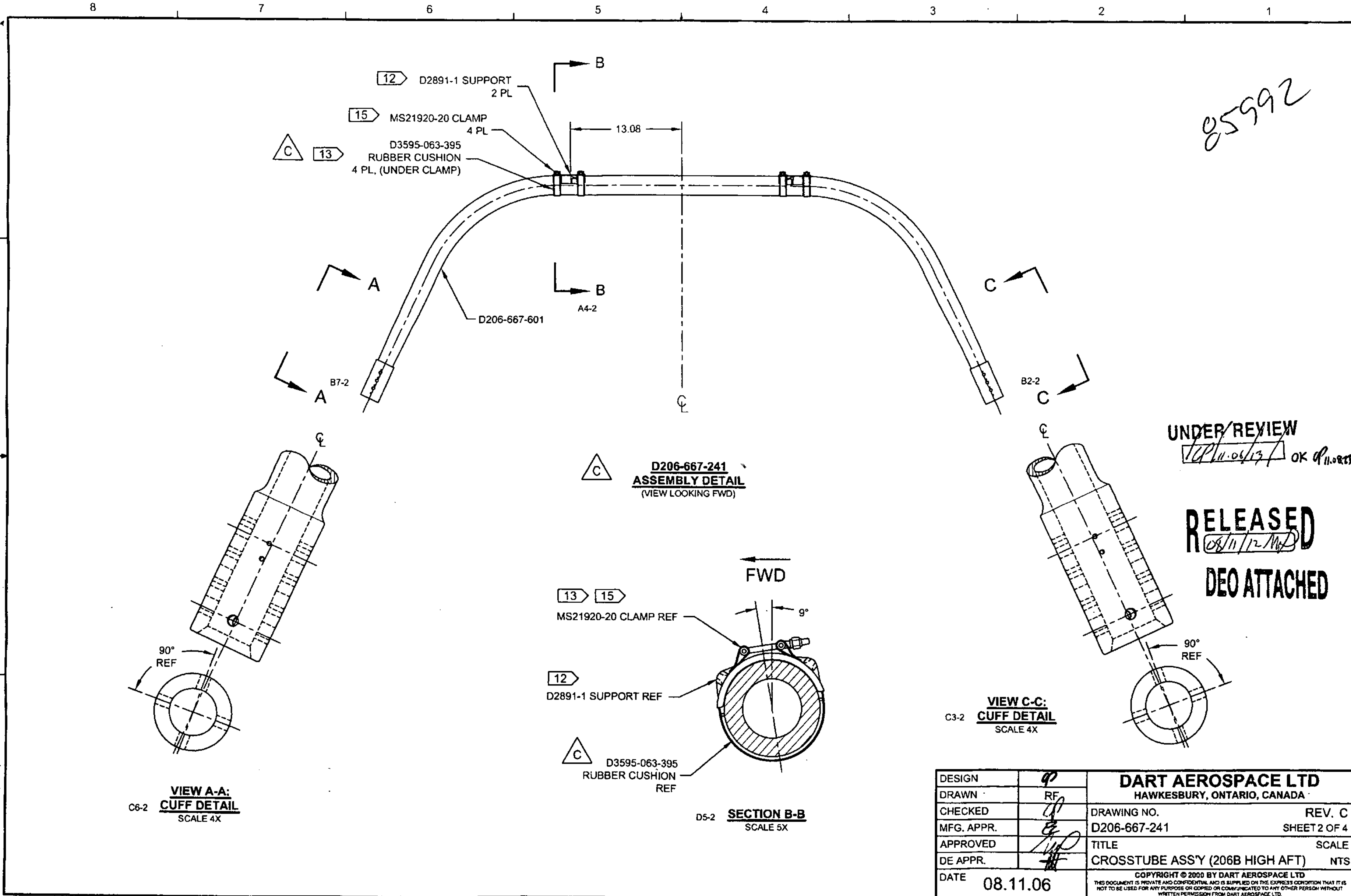
GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6003-102
   FINISHED LENGTH = 100.60±0.020
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: 22.5 lbs
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS MECHANISMS ARE LOCATED ON CROSSTUBE CLAMPS.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

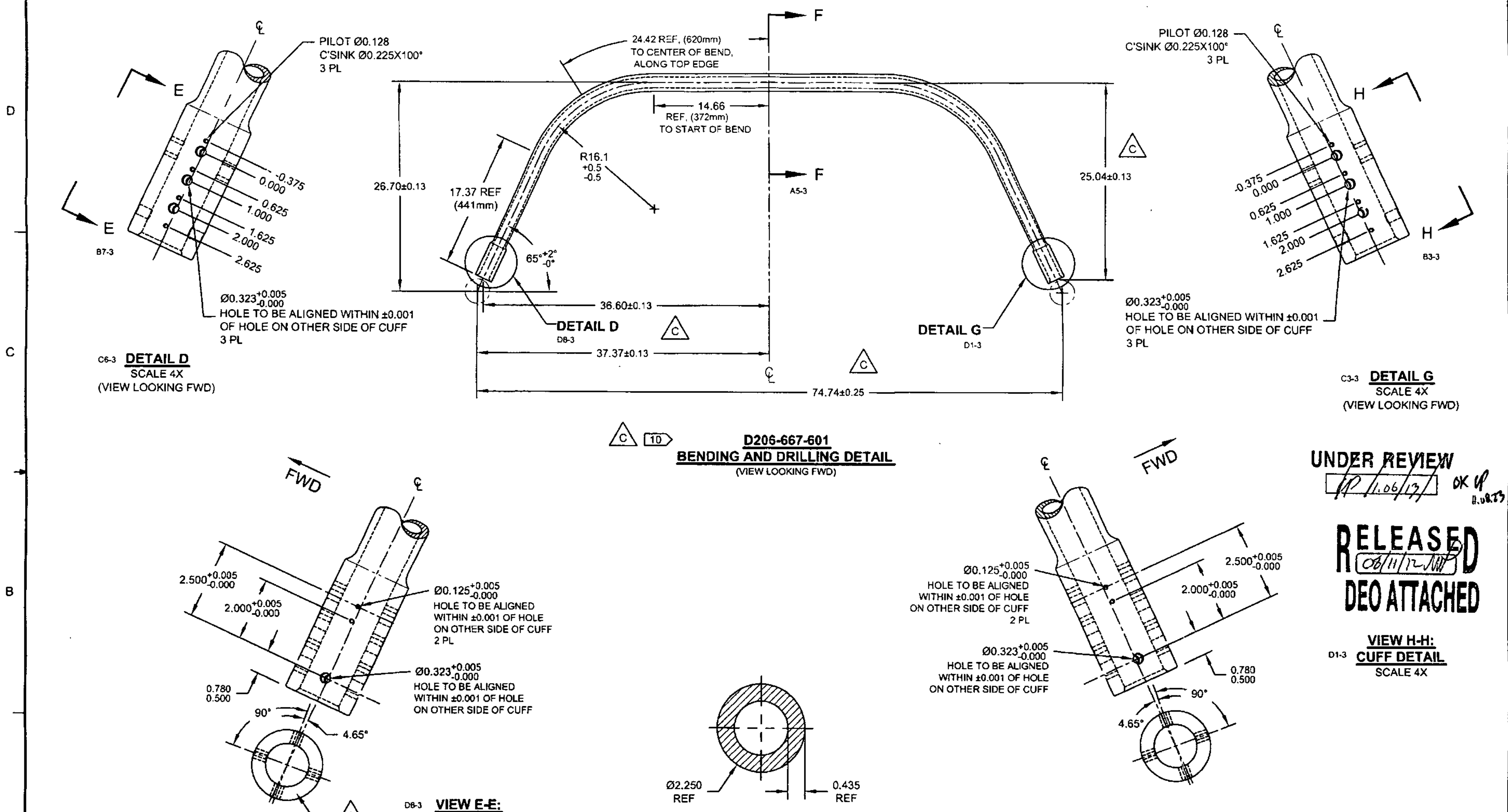
REV.	DESCRIPTION	BY	DATE
C	REFORMAT/REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN C5-3, C4-3, D3-3); RELOCATED FLAG #6 (ZN A7-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	CP	00.11.17

DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D206-667-241 — REV. C — SHEET 1 OF 4
MFG. APPR.		
APPROVED		TITLE: CROSSTUBE ASS'Y (206B HIGH AFT) — SCALE NTS
DE APPR.		
DATE	08.11.06	

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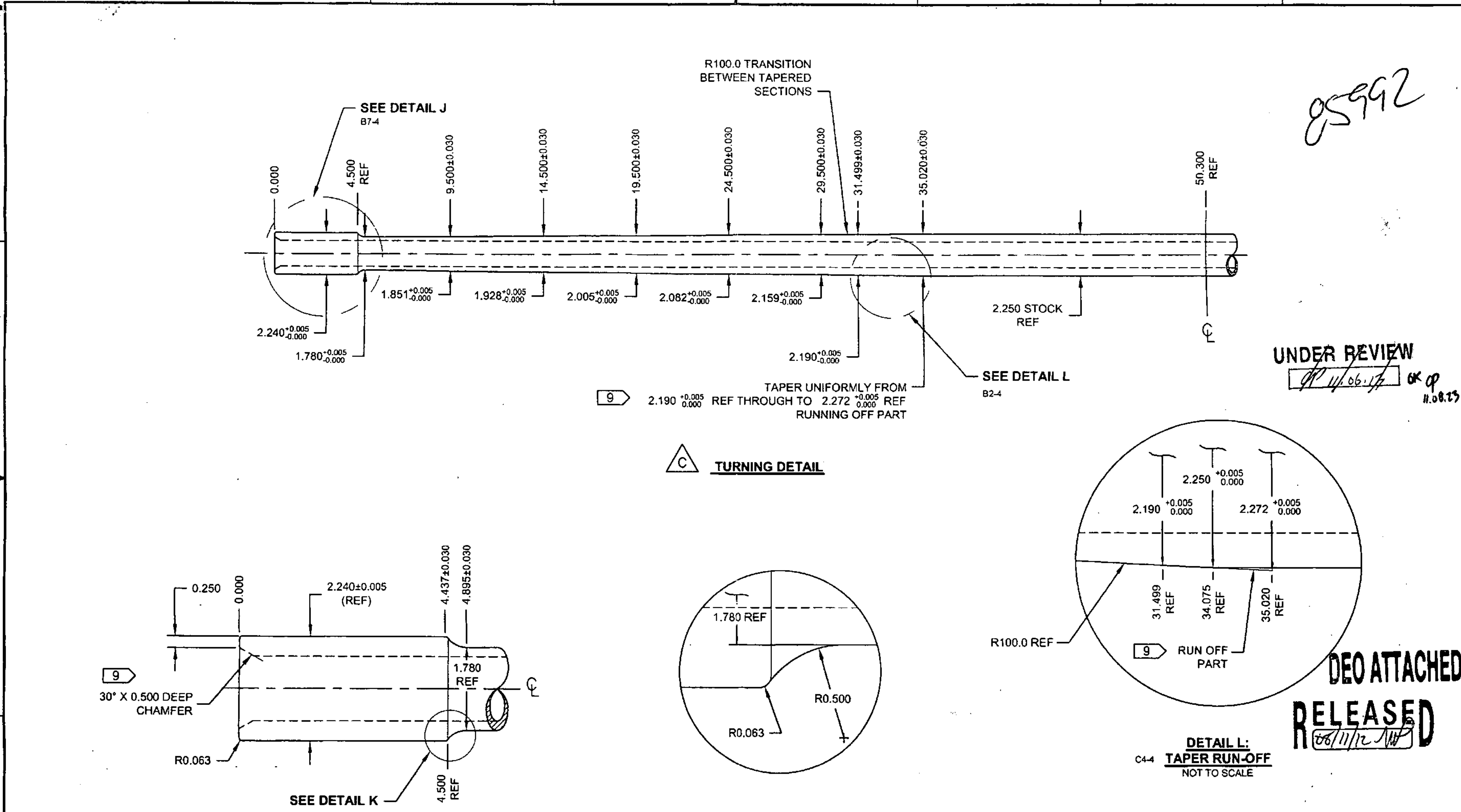


85992
D2891-1 SUPPORT 2 PL
MS21920-20 CLAMP 4 PL
D3595-063-395 RUBBER CUSHION 4 PL, (UNDER CLAMP)
13.08
D206-667-601
A4-2
B7-2
B2-2
D206-667-241
ASSEMBLY DETAIL
(VIEW LOOKING FWD)
FWD
9°
MS21920-20 CLAMP REF
D2891-1 SUPPORT REF
D3595-063-395 RUBBER CUSHION REF
D5-2 SECTION B-B
SCALE 5X
90° REF
C6-2 VIEW A-A: CUFF DETAIL
SCALE 4X
C3-2 VIEW C-C: CUFF DETAIL
SCALE 4X
UNDER REVIEW
OK
RELEASED
DEO ATTACHED
DESIGN
DRAWN RF
CHECKED
MFG. APPR.
APPROVED
DE APPR.
DATE 08.11.06
DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA
DRAWING NO. D206-667-241
REV. C
SHEET 2 OF 4
TITLE CROSSTUBE ASS'Y (206B HIGH AFT)
SCALE NTS
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DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. REV. C
CHECKED		D206-667-241 SHEET 3 OF 4
MFG. APPR.		TITLE SCALE
APPROVED		CROSSTUBE ASS'Y (206B HIGH AFT) NTS
DE APPR.		
DATE	08.11.06	

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DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D206-667-241	REV. C SHEET 4 OF 4
CHECKED			
MFG. APPR.			
APPROVED		TITLE CROSSTUBE ASS'Y (206B HIGH AFT)	SCALE NTS
DE APPR.			
DATE	08.11.06		

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DRAWING NO.	TITLE	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO.	SHEET NO.	SCALE
D206-667-241	CROSSTUBE ASS'Y (206B HIGH AFT) REV. C		D206-667-241-C-1	SHEET 1 OF 1	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 11.07.15	DATE 11.08.22	DATE 11.08.22	DATE 11/08/22	DATE 11.08.22

PURPOSE:
REPLACE MAGNOBOND WITH PROSEAL.

85992

CHANGE:

IS:

Item	Qty -241	Part Number	Description
6	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

6	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) TO INSTALL D2891-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

RELEASED 2011-08-23

WAS:

12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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